

Response

Applicant: Kirk Bresniker et al.

Serial No.: 09/923,976

Filed: August 7, 2001

Docket No.: 10012569-1

Title: SYSTEM AND METHOD FOR GRACEFUL SHUTDOWN OF HOST PROCESSOR CARDS IN A SERVER SYSTEM

REMARKS

This is responsive to the Non-Final Office Action mailed March 2, 2006. In that Office Action, the Examiner rejected claims 1, 2, 6, and 8 under 35 U.S.C. §102(e) as being anticipated by Mitchell et al., U.S. Patent No. 6,230,181 ("Mitchell"). Claims 3-5, 9, 11, 12, and 14-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mitchell in view of Hamre et al., U.S. Patent No. 5,530,302 ("Hamre"). Claims 7, 10, 13, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mitchell in view of Pignolet et al., U.S. Patent No. 6,023,148 ("Pignolet").

With this Response, Applicant respectfully traverses the Examiner's rejection of claims 1-20. Claims 1-20 remain pending in the application and are presented for reconsideration and allowance.

35 U.S.C. §102 Rejections

The Examiner rejected claims 1, 2, 6, and 8 under 35 U.S.C. §102(e) as being anticipated by Mitchell et al., U.S. Patent No. 6,230,181 ("Mitchell"). Independent claim 1 is directed to "a host processor card configured to be fitted into a server system", and recites "a processor" and "a graceful shutdown circuit coupled to the processor and the power control line, the processor configured to provide a graceful shutdown signal to the graceful shutdown circuit, the graceful shutdown circuit configured to allow a graceful shutdown of the host processor card when the power control line indicates that the host processor card is to be powered down if the processor has provided the graceful shutdown signal."

The Examiner identified the gateway card 50 disclosed in Mitchell as corresponding to the host processor card recited in claim 1, and identified shutdown management driver 62 as corresponding to the processor recited in claim 1. (Office Action at para. no. 3, page 3). As shown in Figure 3 of Mitchell, shutdown management driver 62 is separate from the gateway card 50. Mitchell discloses that the shutdown management driver 62 is located on a management card, not on the gateway card 50. (Mitchell at col. 6, lines 26-27). Thus, Mitchell does not teach or suggest a host processor card that comprises a processor that is configured to provide a graceful shutdown signal to a graceful shutdown circuit of the host processor card, as recited in claim 1.

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In view of the above, Mitchell does not teach or suggest each and every limitation of independent claim 1. Applicant respectfully requests removal of the rejection of claim 1 under 35 U.S.C. § 102(e), and requests allowance of this claim. Since dependent claims 2, 6, and 8 further limit patentably distinct claim 1, claims 2, 6, and 8 are believed to be allowable over the cited reference, and allowance of claims 2, 6, and 8 is respectfully requested.

35 U.S.C. §103 Rejections

Claims 3-5, 9, 11, 12, and 14-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mitchell in view of Hamre et al., U.S. Patent No. 5,530,302 ("Hamre").

Dependent claims 3-5 and 9 further limit patentably distinct claim 1, and are believed to be allowable over the cited references. Allowance of claims 3-5 and 9 is respectfully requested.

Independent claim 11 is directed to "a graceful shutdown circuit for a host processor card configured to be fitted into a server system" and recites "a first input configured to be coupled to a processor of the host processor card, the first input indicating whether a graceful shutdown is to be performed" and "a switch circuit coupled to the first input and the power control line, the switch circuit configured to maintain power to the host processor card via the power control line when the first input indicates that a graceful shutdown is to be performed."

With respect to independent claim 11, the Examiner stated that "[a]s per claim 11, it is rejected for similar reasons as stated above in claims 1, 8, and 9." (Office Action at para. no. 12, page 6). With respect to claim 1, the Examiner identified the gateway card 50 disclosed in Mitchell as corresponding to the host processor card recited in claim 1, identified the shutdown management driver 62 as corresponding to the processor recited in claim 1, and identified the shutdown and reset manager 60 as corresponding to the graceful shutdown circuit recited in claim 1. (Office Action at para. no. 3, page 3). As shown in Figure 3 of Mitchell, shutdown management driver 62 is separate from the gateway card 50. Mitchell discloses that the shutdown management driver 62 is located on a management card, not on the gateway card 50. (Mitchell at col. 6, lines 26-27). Thus, shutdown management driver 62 is not a processor of the gateway card 50, and Mitchell does not teach or suggest a graceful shutdown circuit with a first input configured to be coupled to a processor of a host

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processor card, as recited in claim 11. In addition, with respect to claim 9, the Examiner stated that:

Mitchell does not specifically disclose a switch circuit coupled to the power control line and coupled to the processor, the switch circuit configured to override a power down signal on the power control line and thereby maintain power to the host processor card if the processor has provided the graceful signal to the graceful shutdown circuit. Hamre discloses a switch circuit coupled to the power control line and coupled to the processor, the switch circuit configured to override a power down signal on the power control line and thereby maintain power to the host processor card if the processor has provided the graceful signal to the graceful shutdown circuit [i.e. gracefully or gradually removing power] [Abstract; and col. 3, lines 5-19]. (Office Action at para. no. 11, pages 5-6).

Applicant respectfully disagrees with the Examiner's contention that Hamre discloses a switch circuit coupled to a processor and configured to override a power down signal on the power control line and thereby maintain power to the host processor card if the processor has provided the graceful shutdown signal to the graceful shutdown circuit, as recited in dependent claim 9. There is no teaching or suggestion in the above-cited portions of Hamre that the disclosed circuit board even includes a processor. Hamre does not teach or suggest that the disclosed circuit board includes a switch circuit coupled to a processor, let alone that the switch circuit is also configured to override a power down signal on a power control line "if the processor has provided the graceful shutdown signal", as recited in dependent claim 9. Similarly, Hamre does not teach or suggest "a switch circuit coupled to the first input and the power control line, the switch circuit configured to maintain power to the host processor card via the power control line when the first input indicates that a graceful shutdown is to be performed", as recited in independent claim 11.

In view of the above, Mitchell and Hamre do not teach or suggest each and every limitation of independent claim 11. Applicant respectfully requests removal of the rejection of claim 11 under 35 U.S.C. § 103(a), and requests allowance of this claim. Since dependent claim 12 further limits patentably distinct claim 11, claim 12 is believed to be allowable over the cited references, and allowance of claim 12 is respectfully requested.

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Independent claim 14 is directed to “a method of gracefully shutting down a host processor card in a server system”, and recites “providing a graceful shutdown indication from an operating system of the host processor card to a processor of the host processor card when an immediate shutdown of the host processor card should not be performed” and “outputting a graceful shutdown signal from the processor when an immediate shutdown of the host processor card should not be performed.” With respect to independent claim 14, the Examiner stated that “[a]s per claim 14, it is rejected for similar reasons as stated above in claims 1, 8, and 9.” (Office Action at para. no. 14, page 6). In the rejection of claims 1, 8, and 9, the Examiner did not identify any disclosure in Mitchell or Hamre that teaches or suggests “providing a graceful shutdown indication from an operating system of the host processor card to a processor of the host processor card when an immediate shutdown of the host processor card should not be performed”, as recited in independent claim 14.

In addition, with respect to claim 1, the Examiner identified the gateway card 50 disclosed in Mitchell as corresponding to the host processor card recited in claim 1, and identified the shutdown management driver 62 as corresponding to the processor recited in claim 1. (Office Action at para. no. 3, page 3). As shown in Figure 3 of Mitchell, shutdown management driver 62 is separate from the gateway card 50. Mitchell discloses that the shutdown management driver 62 is located on a management card, not on the gateway card 50. (Mitchell at col. 6, lines 26-27). Thus, shutdown management driver 62 is not a processor of the gateway card 50, and Mitchell does not teach or suggest outputting a graceful shutdown signal from a processor of a host processor card when an immediate shutdown of the host processor card should not be performed, as recited in claim 14.

In view of the above, Mitchell and Hamre do not teach or suggest each and every limitation of independent claim 14. Applicant respectfully requests removal of the rejection of claim 14 under 35 U.S.C. § 103(a), and requests allowance of this claim. Since dependent claims 15-19 further limit patentably distinct claim 14, claims 15-19 are believed to be allowable over the cited references, and allowance of claims 15-19 is respectfully requested.

Claims 7, 10, 13, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mitchell in view of Pignolet et al., U.S. Patent No. 6,023,148 (“Pignolet”). Dependent claims 7, 10, 13, and 20 further limit patentably distinct claim 1, 11, or 14, and are believed

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to be allowable over the cited references. These dependent claims are also further distinguishable over the cited references. For example, Applicant could find no disclosure in the portions of Pignolet cited by the Examiner with respect to claim 7 that teaches or suggests "wherein the operating system is configured to write a value to the register indicating that a graceful shutdown is to be performed when the operating system boots up to a point that an immediate shutdown should not be performed." Allowance of claims 7, 10, 13, and 20 is respectfully requested.

CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1-20 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-20 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 08-2025.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Response should be directed to either David A. Plettner at Telephone No. (408) 447-3013, Facsimile No. (408) 447-0854 or Jeff A. Holmen at Telephone No. (612) 573-0178, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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IP Administration
Legal Department, M/S 35
HEWLETT-PACKARD COMPANY
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Respectfully submitted,

Kirk Bresniker et al.

By their attorneys,

DICKE, BILLIG & CZAJA, PLLC
Fifth Street Towers, Suite 2250
100 South Fifth Street
Minneapolis, MN 55402
Telephone: (612) 573-0178
Facsimile: (612) 573-2005

Date: 6/30/06
JAH:jmc

Jeff A. Holmen
Jeff A. Holmen
Reg. No. 38,492

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 30th day of June, 2006.

By: Jeff A. Holmen
Name: Jeff A. Holmen